Exercise 4.3

Question 1:

Solve the following equations:

(a) $2y+\frac{5}{2}=\frac{37}{2}$ (b) $5t+28=10$ (c) $\frac{a}{5}+3=2$

(d) $\frac{q}{4}+7=5$ (e) $\frac{5}{2}x=10$ (f) $\frac{5}{2}x=\frac{25}{4}$

(g) $7m+\frac{19}{2}=13$ (h) $6z+10=-2$ (i) $\frac{3l}{2}=\frac{2}{3}$

(j) $\frac{2b}{3}-5=3$

Answer 1:

(a) $2y+\frac{5}{2}=\frac{37}{2}$

$\Rightarrow \quad 2y=\frac{37}{2}-\frac{5}{2}$ $\Rightarrow 2y=\frac{37-5}{2}$ $\Rightarrow \quad 2y=\frac{32}{2}$

$\Rightarrow \quad 2y=16$ $\Rightarrow \quad y=\frac{16}{2}$ $\Rightarrow \quad y=8$

(b) $5t+28=10$

$\Rightarrow \quad 5t=10-28$ $\Rightarrow 5t=-18$ $\Rightarrow t=\frac{-18}{5}$

(c) $\frac{a}{5}+3=2$

$\Rightarrow \quad \frac{a}{5}=2-3$ $\Rightarrow \frac{a}{5}=-1$ $\Rightarrow a=-1\times 5$

$\Rightarrow \quad a=-5$

(d) $\frac{q}{4}+7=5$

$\Rightarrow \quad \frac{q}{4}=5-7$ $\Rightarrow \frac{q}{4}=-2$ $\Rightarrow q=-2\times 4$

$\Rightarrow \quad q=-8$

(e) $\frac{5}{2}x=10$

$\Rightarrow \quad 5x=10\times 2$ $\Rightarrow 5x=20$ $\Rightarrow x=\frac{20}{5}$

$\Rightarrow \quad x=4$

(f) $\frac{5}{2}x=\frac{25}{4}$

$\Rightarrow \quad 5x=\frac{25}{4}\times 2$ $\Rightarrow 5x=\frac{25}{2}$ $\Rightarrow x=\frac{25}{2\times 5}$

$\Rightarrow \quad x=\frac{5}{2}$

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(g) $7m+\frac{19}{2}=13$

$\Rightarrow \quad 7m=13-\frac{19}{2} \qquad \Rightarrow 7m=\frac{26-19}{2} \qquad \Rightarrow \quad 7m=\frac{7}{2}$

$\Rightarrow \quad m=\frac{7}{2\times 7} \qquad \Rightarrow \quad m=\frac{1}{2}$

(h) $6z+10=-2$

$\Rightarrow \quad 6z=-2-10 \qquad \Rightarrow 6z=-12 \qquad \Rightarrow z=\frac{-12}{6}$

$\Rightarrow \quad z=-2$

(i) $\frac{3l}{2}=\frac{2}{3}$

$\Rightarrow \quad 3l=\frac{2}{3}\times 2 \qquad \Rightarrow 3l=\frac{4}{3} \qquad \Rightarrow l=\frac{4}{3\times 3}$

$\Rightarrow \quad l=\frac{4}{9}$

(j) $\frac{2b}{3}-5=3$

$\Rightarrow \quad \frac{2b}{3}=3+5 \qquad \Rightarrow \frac{2b}{3}=8 \qquad \Rightarrow 2b=8\times 3$

$\Rightarrow \quad 2b=24 \qquad \Rightarrow b=\frac{24}{2} \qquad \Rightarrow b=12$

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Q:-(2) Solve the following equations:

(a) $2(x+4)=12$

Soln:-

$x+4=\frac{12}{2}$

$x+4=6$

$x=6-4$

$\boxed{x=2}$

(b) $3(n-5)=21$

Soln:-

$n-5=\frac{21}{3}$

$n-5=7$

$n=7+5$

$\boxed{n=12}$

(c) $3(n-5)=-21$

Soln:-

$n-5=\frac{-21}{3}$

$n-5=-7$

$n=-7+5$

$\boxed{n=-2}$

(d) $-4(2+x)=8$

Soln:-

$2+x=\frac{8}{-4}$

$2+x=-2$

$x=-2-2$

$\boxed{x=-4}$

(e) $4(2-x)=8$

Soln:-

$2-x=\frac{8}{4}$

$2-x=2$

$-x=2-2$

$\boxed{-x=0}$

or

$\boxed{x=0}$

—x—

Q:-(3) Solve the following Equations:

(a) $4=5(p-2)$

Soln:-

$\frac{4}{5}=p-2$

$\frac{4}{5}+\frac{2}{1}=p$

$\frac{4+2\times5}{5}=p$

$\frac{4+10}{5}=p$

$\boxed{\frac{14}{5}=p}$

or

$\boxed{p=\frac{14}{5}}$

(b) $-4=5(p-2)$

Soln:-

$-\frac{4}{5}=p-2$

$-\frac{4}{5}+2=p$

$\frac{-4+2\times5}{5}=p$

$\frac{-4+10}{5}=p$

$\boxed{\frac{6}{5}=p}$

or

$\boxed{p=\frac{6}{5}}$

(c) $16=4+3(t+2)$

Soln:-

$16-4=3(t+2)$

$12=3(t+2)$

$\frac{12}{3}=t+2$

$4=t+2$

$4-2=t$

$\boxed{2=t}$

or

$\boxed{t=2}$

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(d) $4+5(p-1)=34$

Soln:- $5(p-1) = 34-4$

$5(p-1) = 30$

$(p-1) = \frac{30}{5}$

$p-1 = 6$

$p = 6+1$

$\boxed{p=7}$

(e) $0 = 16+4(m-6)$

Soln:- $0-16 = 4(m-6)$

$\frac{-16}{4} = m-6$

$-4 = m-6$

$-4+6 = m$

$\boxed{2 = m}$

or $\boxed{m=2}$

=x=

Q:-(4) (a) Construct 3 equations starting with $x=2$

Soln:- First equation is, multiply both side by 6

$6x = 2\times6$

$\boxed{6x=12}$ ... [eqn (1)]

Second equation is, subtracting 4 from both side

$6x-4=12-4$

$\boxed{6x-4=8}$ ... [eqn (2)]

Third equation is, Divide both side by 6

$\frac{6x}{6} - \frac{4}{6} = \frac{8}{6}$

$\boxed{x - \frac{4}{6} = \frac{8}{6}}$ ... [eqn (3)]

(b) Construct 3 equations starting with $x=-2$

Soln:- first, multiply both side by 5 $\Rightarrow$ $5x = -2\times5$

$\boxed{5x=-10}$ ... [eqn (1)]

Second, subtracting 3 form both side $\Rightarrow$ $5x-3=-10-3$

$\boxed{5x-3=-13}$ ... [eqn (2)]

Third, Divide both side 2, $\boxed{\frac{5x}{2} - \frac{3}{2} = \frac{-13}{2}}$ ... [eqn (3)]

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